Probing Non-Abelian Statistics with Quasiparticle Interferometry[1] JOHANNES SLINGERLAND, UC Riverside / Caltech, PARSA BONDERSON, Caltech, KIRILL SHTENGEL, UC Riverside — We examine interferometric experiments in systems that exhibit non-Abelian braiding statistics, particularly the non-Abelian quantum Hall states that have recently been proposed as media for topologically protected quantum computation. We find a general expression for the current through a two point contact interferometer in these systems in terms of the topological S-matrix of the non-Abelian anyons. In particular, we give detailed results for the Read-Rezayi series of states, providing explicit predictions for the recently observed $nu = \frac{12}{5}$ quantum Hall plateau.

Johannes Slingerland
UC Riverside / Caltech

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